Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Withdrawn) A method for controlling a writing waveform on an optical disk, in which laser light is irradiated to said optical disk to write information, said method comprising the steps of:

reading a plurality of writing waveform parameters each corresponding to one of a plurality of write speeds, said plurality of writing waveform parameters being written on said optical disk beforehand;

converting one of said plurality of writing waveform parameters into another writing waveform parameter by a predetermined method, said one of said plurality of writing waveform parameters corresponding to a predetermined write speed;

deriving still another writing waveform parameter corresponding to a write speed other than said plurality of write speeds by use of said another writing waveform parameter and a plurality of writing waveform parameters each corresponding to one of said plurality of write speeds other than a write speed corresponding to said another writing waveform parameter (said predetermined write speed); and

writing information to said optical disk by use of said still another writing waveform parameter.

2. (Withdrawn) The method as claimed in claim 1, further comprising a step of:

deriving still another writing waveform parameter corresponding to a write speed other than said plurality of write speeds by use of said another writing waveform parameter and a plurality of writing waveform parameters each corresponding to one of said plurality of write speeds other than a write speed corresponding to said another writing waveform parameter (said predetermined write speed).

3. (Original) A method for controlling a writing waveform on an optical disk in an optical disk apparatus in which information is written to said optical disk while a write speed is varied, said method comprising the steps of:

from optimum writing waveforms each established for one of a plurality of write speeds, determining a writing waveform parameter for an arbitrary speed other than said plurality of write speeds;

irradiating laser light to said optical disk based on said writing waveform parameter to write information; and

based on information on at least a first writing waveform parameter and a second writing waveform parameter optimum for a highest write speed and a lowest write speed, respectively, and a third writing waveform parameter optimum for a middle speed therebetween, deriving a writing waveform parameter for each speed between said highest speed and said lowest speed.

4. (Original) The method as claimed in claim 3, further comprising a step of:

in an optical disk writing system in which constant angular velocity (CAV) writing is performed with an outermost circumference and an innermost circumference (of said disk) set to said highest speed and said lowest speed corresponding to said first waveform parameter and said second writing waveform parameter, respectively, determining a writing waveform parameter for each speed between said inner(most) and outer(most) circumferences when CAV writing is performed based on said information on said third writing waveform parameter for said middle write speed between said innermost and outermost circumferences.

5. (Original) The method as claimed in claim 3, wherein said method uses a writing waveform configured such that:

said writing waveform has a multi-pulse portion and is divided into three blocks such as a front pulse, said multi-pulse portion, and an back pulse portion; and

in a long mark, said front and back pulses are fixed, and only the number of pulses of said multi-pulse portion changes with changing mark length.

6. (Original) The method as claimed in claim 5, further comprising a step of:

converting a writing waveform parameter such that average write energy of said multi-pulse portion (per unit time) is maintained at a same value for each linear velocity.

7. (Original) The method as claimed in claim 6, further comprising a step of:

continuously changing power of a bias portion to maintain write energy of said multi-pulse portion per unit time at a same value.

8. (Original) The method as claimed in claim 3, wherein:

said first writing waveform parameter (for said highest write speed) and said second writing waveform parameter (for said lowest write speed) are optimum parameters determined through test write operation; and

said third writing waveform parameter (for said middle write speed between said highest and lowest write speeds) is a recommended parameter for said middle write speed written on said disk beforehand.

9. (Original) A method for controlling a writing waveform on an optical disk in a system which uses a DVD-RAM as a recording medium and performs CAV writing on said DVD-RAM from an inner circumference at 2X to an outer circumference at 5X, said method using:

a writing waveform parameter for 5X as a first parameter;

a writing waveform parameter for 2X as a second parameter; and

a recommended writing waveform parameter for 3X written on said disk as a third parameter.

10. (Withdrawn) An optical disk apparatus for irradiating laser light to an optical disk to write information, comprising:

an optical pickup for irradiating said laser light to said optical disk so as to receive reflected light from said optical disk and thereby read information written on said optical disk or to write information to said optical disk;

a laser driver for controlling a laser of said optical pickup;

a microcomputer for, by use of a converted writing waveform parameter obtained as a result of converting one of a plurality of writing waveform parameters each corresponding to one of a plurality of write speeds, deriving a writing waveform parameter corresponding to a write speed other than said plurality of write speeds, said plurality of writing waveform parameters being read from said optical disk by said optical pickup, said one of said plurality of writing waveform parameters corresponding to a predetermined write speed; and

a digital control unit for controlling said laser driver by use of said writing waveform parameter derived by said microcomputer.

11. (Withdrawn) The optical disk apparatus as claimed in claim 10, wherein said microcomputer derives said writing waveform parameter corresponding to said write speed other than said plurality of write speeds by use of said converted writing waveform parameter and a plurality of writing waveform parameters each corresponding to one of said plurality of write speeds other than a write speed corresponding to said converted writing waveform parameter (said predetermined write speed).

12. (Original) A read/write apparatus comprising:

means for reading and analyzing parameters written on a disk;

means for analyzing said parameters and determining interpolation parameters; and

means for, based on at least a parameter for a highest speed, a parameter for a lowest speed, and a parameter for a middle speed, determining parameters for all possible speeds.

13. (Original) The read/write apparatus as claimed in claim 12, further comprising:

means for performing a trail write operation to obtain said parameter for said highest speed;

means for performing a test write operation to obtain said parameter for said lowest speed; and

means for, based on said parameters obtained through said test write operations and a third parameter for a middle speed written on said disk, determining said parameters for all possible speeds.

14. (Withdrawn) A method for controlling a writing waveform on an optical disk, in which laser light is irradiated to said optical disk to write information, said method comprising the steps of:

reading an original writing waveform parameter written on said optical disk beforehand;

converting said original writing waveform parameter into another writing waveform parameter such that a waveform written with said another writing waveform parameter has the same energy as that of a waveform written with said original writing waveform parameter; and

writing information to said optical disk by use of said another writing waveform parameter.

15. (Withdrawn) A method for controlling a writing waveform, comprising the steps of:

comparing an original writing waveform parameter for a write condition with a (light-emitting) shape of a writing waveform which can be output from a device under said write condition, said original writing waveform parameter being written on a disk beforehand; and

if it is determined that it is difficult to generate a (light-emitting) waveform indicated by said original writing waveform parameter written on said disk, changing said original writing waveform parameter into another writing waveform parameter such that a waveform written with said another writing waveform parameter has the same energy as that of a waveform written with said original writing waveform parameter.

16. (Withdrawn) An optical disk apparatus for irradiating laser light to an optical disk to write information, comprising:

an optical pickup for irradiating said laser light to said optical disk so as to receive reflected light from said optical disk and thereby read information written on said optical disk or to write information to said optical disk;

a laser driver for controlling a laser of said optical pickup;

a microcomputer for converting an original writing waveform parameter read from said optical disk by said optical pickup into another writing waveform parameter such that a waveform written with said another writing waveform parameter has the same energy as that of a waveform written with said original waveform parameter; and

a digital control unit for controlling said laser driver by use of said another writing waveform parameter obtained by said microcomputer.

17. (Withdrawn) An information read/write apparatus comprising:

means for storing a parameter that allows determining a performance of a writing (light-emitting) waveform which can be output;

means for determining whether it is possible to generate a light-emitting waveform indicated by a recommended parameter written on a disk;

means for, if it is difficult to generate said light-emitting waveform, converting an original waveform parameter (said recommended parameter) into another parameter such that a waveform written with said another parameter has the same energy as that of a waveform written with said original waveform parameter (said recommended parameter); and

means for generating a writing waveform by use of said another parameter.

18. (Original) A method for writing information to an optical disk by irradiating laser light thereto, said optical disk storing:

a first writing waveform parameter for a first write speed;

a second writing waveform parameter for a second write speed higher than said first write speed; and

a third writing waveform parameter for a third write speed higher than said second write speed; said method comprising the step of:

writing information at said second write speed by use of a fourth writing waveform parameter obtained as a result of converting said second writing waveform parameter.

19. (Original) The method as claimed in claim 18, further comprising steps of:

writing information at said first write speed by use of a fifth writing waveform parameter obtained as a result of a trail write operation at said first write speed;

writing information at said third write speed by use of a sixth writing waveform parameter obtained as a result of a test write operation at said third write speed; and

writing information at said second write speed by use of a writing waveform parameter obtained as a result of approximating said fourth writing waveform parameter.

20. (Original) The method as claimed in claim 18, wherein energy received by said optical disk when laser light is irradiated based on said second writing waveform parameter is substantially equal to that received by said optical disk when laser light is irradiated based on said fourth writing waveform parameter.

21. (Original) The method as claimed in claim 20, wherein:

said second writing waveform parameter includes a parameter for a multi-pulse component of laser light to be irradiated; and

said method further comprises a step of:

obtaining said fourth writing waveform parameter by changing bias power of a multi-pulse component of said second writing waveform parameter.

22. (Original) The method as claimed in claim 20, wherein:

said second writing waveform parameter includes a parameter for a multi-pulse component of laser light to be irradiated; and

said method further comprises a step of:

obtaining said fourth writing waveform parameter by changing write power of a multi-pulse component of said second writing waveform parameter.

23. (Original) The method as claimed in claim 20, wherein:

said second writing waveform parameter includes a parameter for a multi-pulse component of laser light to be irradiated; and

said method further comprises a step of:

obtaining said fourth writing waveform parameter by changing a pulse width of a multi-pulse component of said second writing waveform parameter.